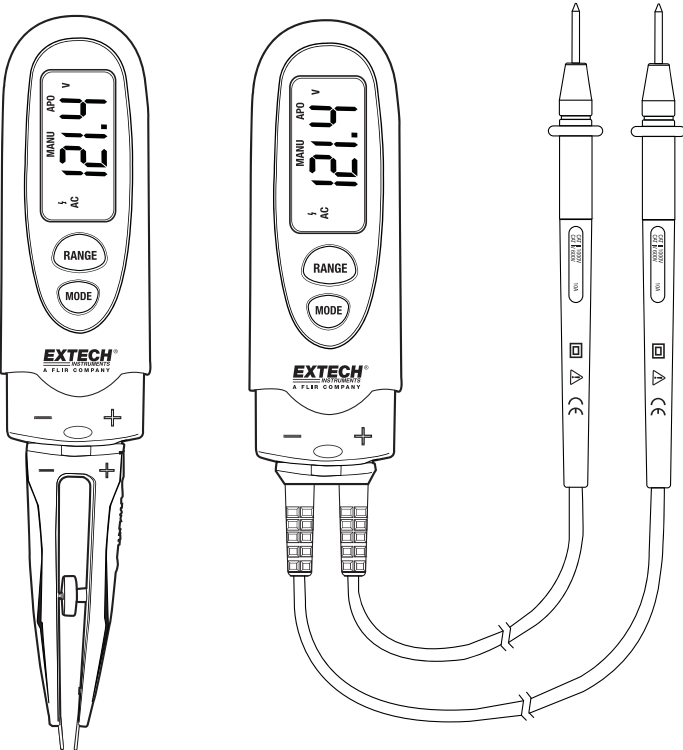


User's Guide



# R/C SMD Tweezers Multimeter

## Model RC200



## Introduction

Congratulations on your purchase of the Extech RC200 RC Tweezers Multimeter. This meter, using the tweezers adaptor, measures SMD capacitors, resistors, diodes and continuity test. With the test lead adaptor, it measures AC/DC Voltage. Proper use and care of this meter will provide many years of reliable service.

## Safety

### INTERNATIONAL ELECTRICAL SYMBOLS



Caution ! Refer to the explanation in this Manual



Caution ! Risk of electric shock



Earth (Ground)



Double Insulation or Reinforced insulation

This meter has been designed for safe use, but must be operated with caution. The rules listed below must be carefully followed for safe operation.

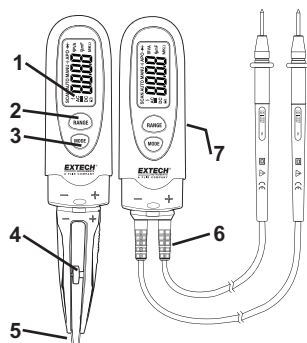
1. **NEVER** measure voltage with the Tweezer adaptor installed.
2. **NEVER** apply voltage or current to the meter that exceeds the specified maximum:

Input Protection Limits	
Function	Maximum Input
V DC or V AC	600V DC/AC

3. **USE EXTREME CAUTION** when working with voltages greater than 25VAC or 35VDC. These voltages are considered a shock hazard.
4. **DO NOT** measure voltage if the voltage on the "COM" input jack exceeds 600V above earth ground.
5. **NEVER** connect the meter leads across a voltage source while the function switch is in the capacitance, resistance, or diode mode. Doing so can damage the meter.
6. **ALWAYS** discharge filter capacitors in power supplies and disconnect the power when making capacitance, resistance, continuity or diode tests.
7. **ALWAYS** turn off the power and disconnect the test leads from the circuit before opening the cover to replace the batteries.
8. **NEVER** operate the meter unless the battery cover is in place and fastened securely.
9. **NEVER** operate the meter if any part is damaged.
10. **ALWAYS** turn the meter off when not in use.

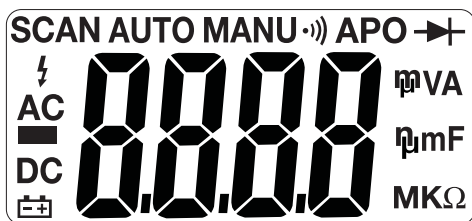
## Description

1. LCD display
2. RANGE button
3. MODE and Power button
4. Spacing adjustment
5. Tweezer contacts
6. Voltage adaptor
7. Batter compartment (rear)



## LCD Display Symbols

- Low battery
- Continuity
- Diode
- >30V caution icon.
- n** nano ( $10^{-9}$ ) (capacitance)
- μ** micro ( $10^{-6}$ ) (amps, cap)
- m** milli ( $10^{-3}$ ) (volts, amps)
- k** kilo ( $10^3$ ) (ohms)
- F** Farads (capacitance)
- M** mega ( $10^6$ ) (ohms)
- Ω** Ohms
- V** Volts
- AC** AC voltage
- DC** DC voltage
- AUTO** Auto Range
- SCAN** SCAN mode
- APO** Auto power off enabled



## Operating Instructions

**WARNING:** Risk of electrocution. High-voltage circuits, both AC and DC, are very dangerous and should be measured with great care.

1. If "OL" appears in the display during a measurement, the value exceeds the range you have selected. Change to a higher range.
2. The meter will automatically recognize if the voltage test leads or tweezers adaptor is inserted.
3. The meter will turn on with autoranging "AUTO" selected. In this mode, the unit will automatically select the proper range to measure the device under test. Press the "RANGE" button to go to manual ("MANU") ranging. Continue pressing the button until the range desired is selected. Press and hold the RANGE button for two seconds to return to autoranging.
4. On some low AC and DC voltage ranges, with the test leads not connected to a device, the display may show a random, changing reading. This is normal and is caused by the high-input sensitivity. The reading will stabilize and give a proper measurement when connected to a load.

### Test Lead AC/DC Voltage Measurements

1. Insert the voltage adaptor into the meter observing the polarity indicators.
2. Press the MODE button for 2 seconds until the meter beeps. "V" will be displayed on the LCD
3. Press the MODE button to select either AC or DC voltage.
4. Touch the black test probe tip to the negative side of the circuit.  
Touch the red test probe tip to the positive side of the circuit.
5. Read the voltage in the display.

**Note:** The "⚡" "DANGER" symbol will appear in the display whenever the measured voltage exceeds 30V

**WARNING:** To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any capacitance or resistance measurements. Remove the batteries and unplug line cords.


### Tweezer Resistance, Capacitance, Continuity and Diode Measurements.

1. Insert the tweezers adaptor into the meter observing the polarity indicators.
2. Press the MODE button for 2 seconds until the meter beeps. The meter turns on in the SCAN mode and "- - -" on the display.
3. Insert a component into the tweezers contacts. In the SCAN mode, the meter automatically selects the proper range and units (Capacitance or Resistance).
4. Read the measurement results in the display.
5. Press the MODE button to exit the SCAN mode and begin resistance measurements. The "Ω" icon will appear on the display.
6. Press the MODE button for continuity measurements. The "⌂" icon will appear on the display. The meter will beep if the resistance is less than the continuity threshold.
7. Press the MODE button for diode measurements. The "➔" icon will appear on the display. A good diode will read "OL" in one direction and a low voltage in the opposite direction.
8. Press the MODE button for capacitance measurements. The "F" icon will appear on the display. It can take several minutes for the reading to stabilize at the final value for large value capacitors.
9. Press the MODE button again to return to the SCAN mode.

## Power OFF and Auto Power OFF

Press and hold the MODE button for 4 seconds to manually turn power off. The auto off feature will automatically turn the meter off after approximately 10 minutes of inactivity..

## Low Battery Indication

The  icon will appear in the display when the battery voltage becomes low. Replace the battery when this appears.

## Maintenance

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1. **KEEP THE METER DRY.** If it gets wet, wipe it off.
2. **USE AND STORE THE METER IN NORMAL TEMPERATURES.** Temperature extremes can shorten the life of the electronic parts and distort or melt plastic parts.
3. **HANDLE THE METER GENTLY AND CAREFULLY.** Dropping it can damage the electronic parts or the case.
4. **KEEP THE METER CLEAN.** Wipe the case occasionally with a damp cloth. DO NOT use chemicals, cleaning solvents, or detergents.
5. **USE ONLY FRESH BATTERIES OF THE RECOMMENDED SIZE AND TYPE.** Remove old or weak batteries so they do not leak and damage the unit.
6. **IF THE METER IS TO BE STORED FOR A LONG PERIOD OF TIME,** the batteries should be removed to prevent damage to the unit.

## BATTERY INSTALLATION

1. Turn power off.
2. Open the rear battery cover by removing the two Phillips head screws located on the rear of the meter.
3. Insert the batteries into battery holder, observing the correct polarity.
4. Put the battery cover back in place. Secure with the screws.
- 5.

You, as the end user, are legally bound (Battery ordinance) to return all used batteries and accumulators; disposal in the household garbage is prohibited!



You can hand over your used batteries / accumulators at collection points in your community or wherever batteries / accumulators are sold!


Disposal: Follow the valid legal stipulations in respect of the disposal of the device at the end of its lifecycle

**NOTE:** If your meter does not work properly, check the batteries to make sure that they are still good and that they are properly inserted.

## Specifications

Function	Range	Resolution	Accuracy
DC Voltage	600mV	0.1mV	±(0.8% reading + 2 digits)
	6V	0.001V	
	60V	0.01V	
	600V	0.1V	±(1.0% reading + 4 digits)
AC Voltage 50 to 60Hz	600mV	0.1mV	±(1.0% reading + 4 digits)
	6V	0.001V	
	60V	0.01V	±(1.2% reading + 6 digits)
	600V	0.1V	
Resistance	600Ω	0.1Ω	±(1.5% reading + 8 digits)
	6kΩ	0.001kΩ	
	60kΩ	0.01kΩ	
	600kΩ	0.1kΩ	
	6MΩ	0.001MΩ	±(2.5% reading + 8 digits)
	60MΩ	0.01MΩ	
Capacitance	6nF	0.001nF	±(5.0% reading + 50 digits)
	60nF	0.01nF	±(5.0% reading + 7 digits)
	600nF	0.1nF	±(3.0% reading + 5 digits)
	6μF	0.001μF	
	60μF	0.01μF	
	600μF	0.1μF	
	6mF	0.001mF	±(10% reading + 10 digits)
	60mF	0.01mF	

**NOTE:** Accuracy is stated at 18°C to 28°C (65°F to 83°F) and less than 75% RH.

<b>Diode Test</b>	Test current 1mA, open circuit voltage 3V DC typical
<b>Continuity Check</b>	Audible threshold 10 to 40 ohms.
<b>Input Impedance</b>	10MΩ (VDC & VAC)
<b>AC Response</b>	Average responding
<b>ACV Bandwidth</b>	50Hz to 60Hz
<b>Display</b>	6000 count liquid crystal
<b>Overrange Indication</b>	“OL” is displayed
<b>Polarity</b>	Automatic (no indication for positive); Minus (-) sign for negative
<b>Auto Power Off</b>	10 minutes (approx)
<b>Low Battery Indication</b>	“  ” is displayed if battery voltage drops below the operating voltage
<b>Batteries</b>	Two button batteries, AG13/LR44 or equivalent
<b>Battery life</b>	Approximately 60 hours
<b>Operating Temperature</b>	-10°C to 50°C (14°F to 122°F)
<b>Storage Temperature</b>	-30°C to 60°C (-4°F to 140°F)
<b>Operating Humidity</b>	Max 80% up to 31°C (87°F) decreasing linearly to 50% at 40°C (104°F)
<b>Storage Humidity</b>	<80%
<b>Operating Altitude</b>	2000 meters (7000ft) maximum.
<b>Weight</b>	65g (2.3oz)
<b>Size</b>	181 x 35 x 20mm (7.1 x 1.4 x 0.8")
<b>Safety</b>	For origin of installation use and in accordance with the requirements for double insulation per EN61010-1 and IEC61010-1 2 <sup>nd</sup> Edition (2001) to Overvoltage Category III 600V; Pollution Degree 2.

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